Ecosystem Service Valuation Applied:

SMP Application: Clallam Case Study

April 25, 2013

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What is your planet worth?

Jennifer Harrison-Cox, Managing Director

About Us

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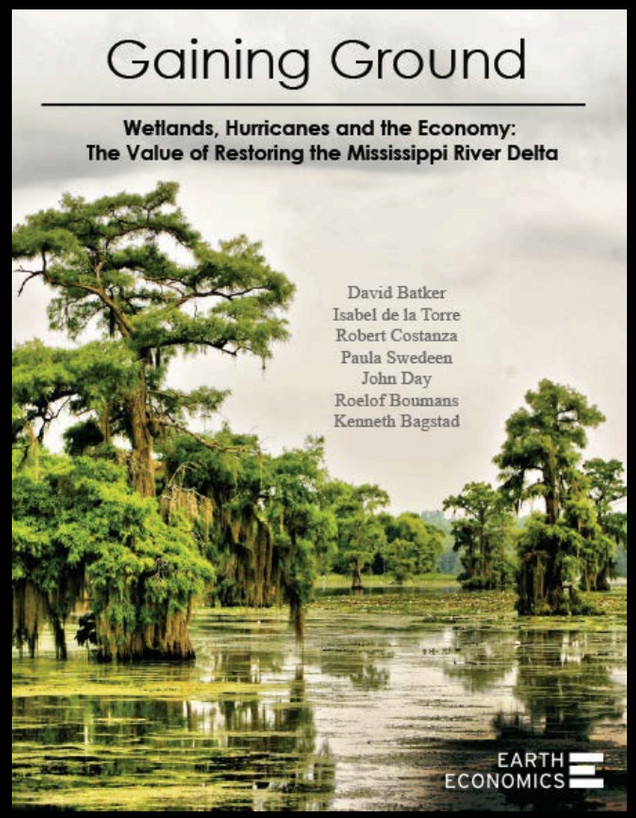
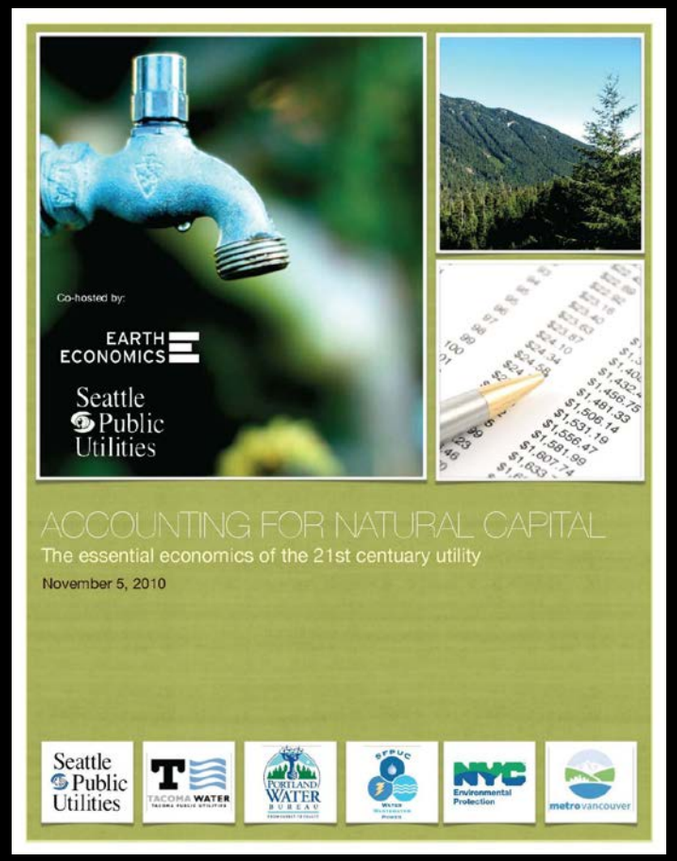
501(c)3 founded in 1998





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Freshwater Supply

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Ecosystem Services

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Leveraging Capital for 21st Century Solutions

Built Capital

Social Capital

Human Capital

Natural Capital

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Leveraging Capital for 21st Century Solutions

Dams, Bulkheads, Levees, Roads

Regulatory Policy, Government

People, Ideas

Ecosystem Services

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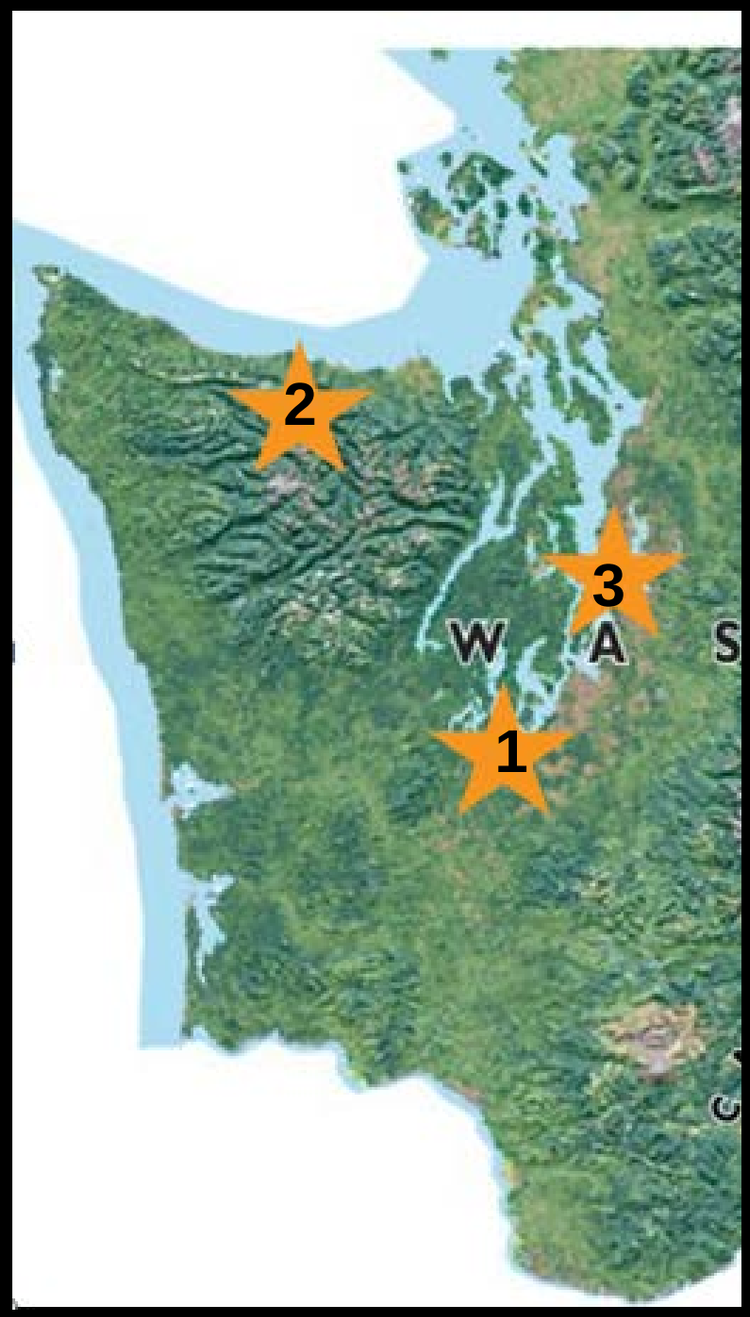

#1 Thurston County

#2 Clallam County

#3 Pierce County

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Key Concepts

- Natural capital appreciates over time whereas built-capital depreciates and typically requires more maintenance cost.
- Ecosystem Service frameworks are transdisciplinary, providing a means for science to inform economic policy.
- Lose an ecosystem service, gain a tax district.
- Local, State and Federal regulation is critical to a healthy economy.

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Clallam County

15 Ecosystem services

11 Land cover types

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Port Angeles, Washington

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Clallam Study Goals

1. Baseline values for Clallam County's ecosystem services
2. Primary nearshore ecosystem service values
3. Inform Policies: Shoreline Master Program and No Net Loss

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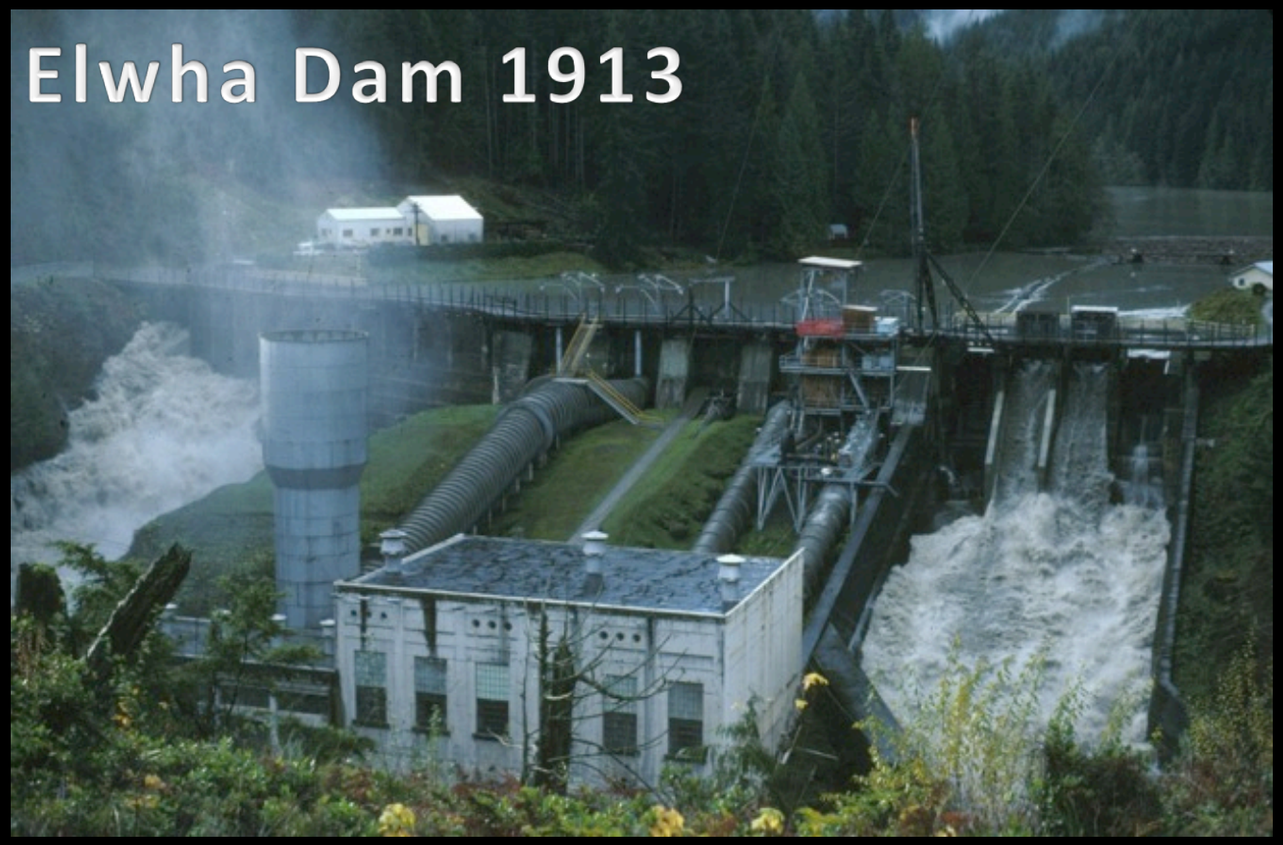
Elwha River


Elwha Dam 1913

Glines Canyon Dam 1926

STRAIT OF JUAN DE FUCA
Lower Elwha Tribal Reservation
Port Angeles
Elwha Dam
LAKE ALDWELL
LAKE SUTHERLAND
OLYMPIC
Glines Canyon Dam
LAKES MILLS
Elwha
NATIONAL
Lillian
River
River
PARK
Lost
River
River
Goldie
Hayes
River
N
0
5
MILES
EXPLANATION
Tribal Hatchery
Diversion Dam, State Fish Rearing Channel and City Ranney Well
Site
WASHINGTON
PROJECT LOCATION

Elwha River- Dam Removal

Elwha Dam 2011

http://www.kimatv.com/news/local/Elwha-dam-removal-work-resumes-after-fish-window-135873888.html

Glines Canyon Dam 2011

http://dels.nas.edu/global/besr/GSC_Dam_Removal

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Ediz Hook 2012
Photo by Tom Roorda©

Elwha Nearshore Sediment Sources – Prior to Dams

Riverine

River contributed 15% of sediment to littoral system

Shoreline

Prior to dams, bluffs provided 85% of sediment to littoral system

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Nearshore- Primary Valuation

Feeder-bluff sediment transportation and deposition

Invertebrates populations

Forage fish populations

Bluff erosion

http://www.the-scientist.com/?articles.view/articleNo/32952/title/Little-Fish-in-a-Big-Pond/

http://content.lib.washington.edu/cdm4/item_viewer.php?CISOROOT=/nps&CISOPTR=1839

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Feeder Bluffs

Source material for beaches, fish, marine invertebrates and birds

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Methodology:

Avoided cost and replacement cost of services currently provided by ecological functions present in Clallam County Nearshore

Expected Results:

- Armored shoreline prevents natural sediment deposition, creates starved shoreline prone to natural disasters.
- Nearshore contributes significantly to Clallam County's economy

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Management Issues

<u>Armoring-Bulkheading</u>

- Remove nearshore habitat critical for beach retention
- Disrupt sediment transport by disconnecting beaches from sediment source causes beach starvation
- Alter shoreline energy, increase energy along face, causes beach to drop and 'harden' or change to a substrate size not suitable for spawning

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Erosion

Active bluff erosion near homes in the Monterra community between MacDonald and Siebert Creek in Dungeness drift cell

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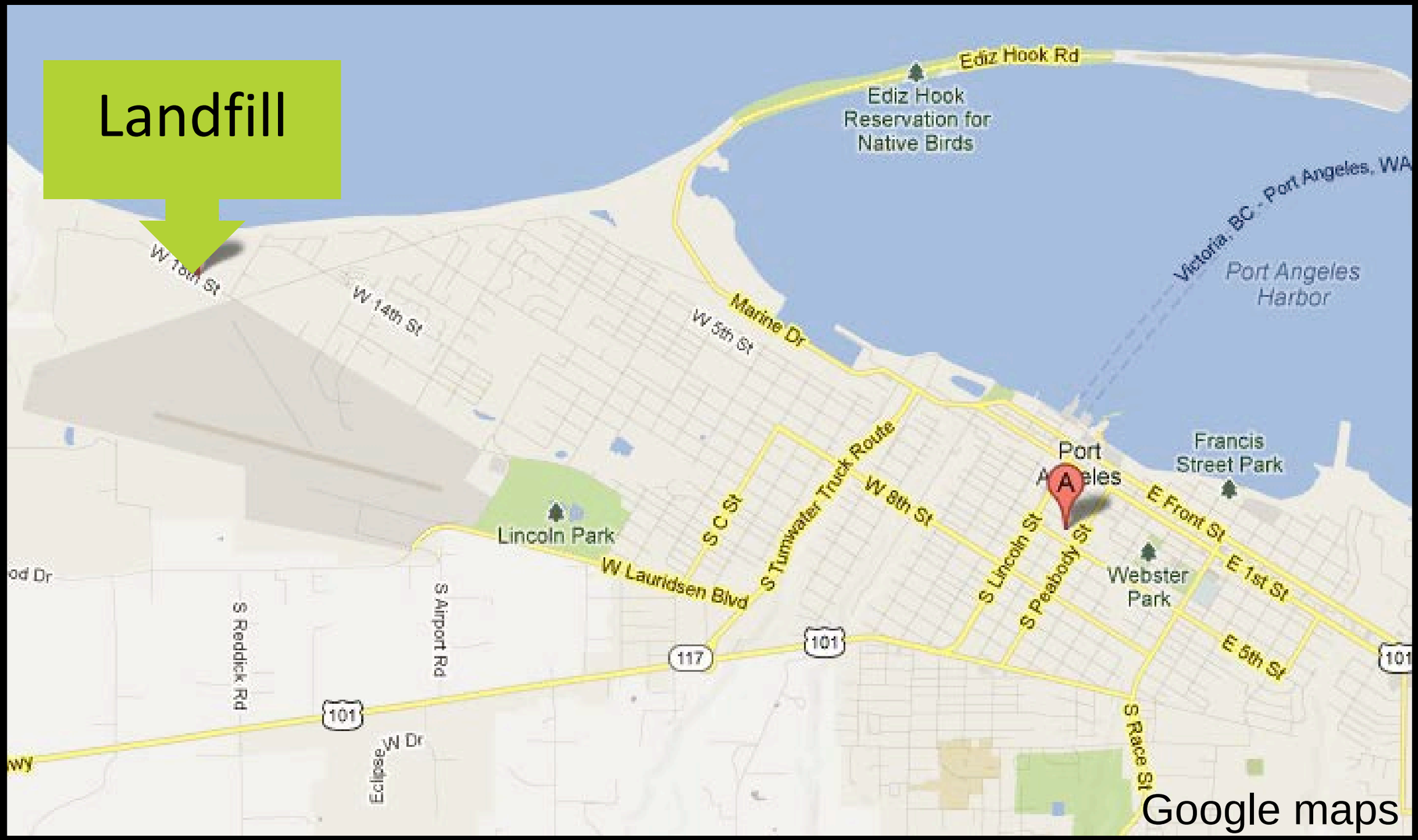
City of Port Angeles Landfill



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How to secure the Port Angeles landfill *and* protect coastline ecosystem values?

http://www.djc.com/news/en/12045434.html

Applying ES to SMP and NNL in Clallam County

Communicating importance of conserving nearshore
Illustrating the economics loss/gain

Ecosystem Service Flow of Value

High	$12 Billion
Low	$1 Billion

Annually

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Partners in SMP Innovation

Implementation partner for County Planners

Economic analysis and arguments

Communications and outreach through SMP booklets, etc

Integration of climate change in SMP updates

High value habitat identification to inform Inventory Characterization Report

Coastal and Marine Spatial Planning (CMSP) assistance

Thank You!

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